

Restoration of the Lincoln Memorial Murals

In 1995 and 1996, two decorative murals by the artist Jules Guerin were restored at the Lincoln Memorial in Washington, DC. The murals, painted between 1917 and 1918, were in such poor condition that they were easy to miss when visiting the memorial. They are very high off the floor (37 feet) and were obscured by the dirt and the damage of 76 years of exposure to the elements. The restoration was one component of a multi-million dollar preservation effort sponsored by the National Park Service (NPS) for the memorial as a whole. It was completed by the firm of Cunningham-Adams Fine Arts Painting Conservation of Sandy Hook, Connecticut.

The Lincoln Memorial, designed by the architect Henry Bacon, is open to the outside because there are no doors at its main entry. The materials on its interior, limestone and marble with an ornamental cast-metal ceiling, have held up nicely since the memorial was dedicated on May 30, 1922. The murals, however, have not fared as well because of their exposed location and because they are painted with oil on canvas, the same as an average oil painting intended to hang inside a building. This presented an extremely challenging conservation problem. The murals' paint and ground (preparatory) layers were cracked and flaking loose from the canvas; they were dirty and, in addition, their colors had faded dramatically. The initial goal of the restoration was to stabilize the paintings. The method developed by the conservators to stabilize them, however, had the added benefit of protecting them from the weather, as well as returning their original color and vibrancy.

The murals are located in the north and south chambers of the memorial, above the inscriptions of the Second Inaugural Address and the Gettysburg Address. These side chambers flank the central space of the interior, which houses Daniel Chester French's marble statue of Lincoln. The murals are each 12 feet high by 60 feet long. They add color and texture to the inte-

rior of the memorial and complement its neoclassical architecture.

The Subject Matter

The murals contain a total of 48 figures in classical costume that allegorically portray the accomplishments of Lincoln, the 16th president of the United States and the emancipator of the slaves. The figures are divided into three groupings on each mural. The mural on the north wall above the Second Inaugural Address is titled "Unification." The Angel of Truth is at its center joining the hands of two figures representing the reunion of the north and the south. The other groupings of figures depict unity, fraternity and charity, as well as art, science, and the humanities. These images were chosen to stress the importance of continued progress in the once-divided nation. The mural on the south wall above the Gettysburg Address is titled "Emancipation." The Angel of Truth is shown freeing slaves, their chains dropping to the ground as the angel raises her arms. Other figures in the painting represent faith, hope, and charity, as well as justice, law, reason, intelligence, and immortality.

The Artist and the Murals

Jules Vallee Guerin was born in St. Louis, Missouri on November 18, 1866 and died in Neptune, New Jersey on June 14, 1946. In 1911, Henry Bacon hired Guerin to assist him in a design competition sponsored by the Lincoln Memorial Commission for a new memorial. Guerin, a prominent architectural illustrator, created exquisite watercolors of Bacon's design and Bacon was ultimately awarded the contract. He later chose Guerin to create the two large murals, which along with the statue, inscriptions, and ceiling, were an integral part of the memorial's interior decoration.

The murals were painted on two continuous pieces of canvas in the artist's studio in New York City. Guerin used a platform similar to a stage to paint, where the canvases could be raised or lowered as desired. Remarkably, the charcoal

sketches he made on the canvases before he began painting are still in place, despite the harsh environment in the memorial. In 1919, the murals were brought to Washington rolled onto large wooden drums. The drums were hoisted into place and the murals were gradually unrolled from the center out. They were then adhered directly onto the limestone walls and tamped down with felt-covered bricks. The murals are still extremely well adhered to the walls from this original treatment.

Guerin executed the paintings in a style which combined his early classical training in art with impressions from extensive travel in the Middle East and contemporary stylistic trends. Painted in rich, exotic colors and bold, distinctive brush strokes, the paintings resemble tapestries, and serve the same purpose of warming the stone interior of the memorial that Medieval tapestries served in stone castles.

Guerin's work in public buildings prior to the Lincoln Memorial included maps painted on the ceiling of McKim, Mead, and White's Pennsylvania Station in New York City, now demolished. He later went on to paint murals in other cities, including Chicago, San Francisco, Baton Rouge, Kansas City, and Cleveland.

The Conservation Treatment

The National Park Service determined early in the overall preservation effort for the memorial that the murals needed attention. Since little was known about the history of the murals and their unusual environmental conditions, the NPS contracted with the firm of Einhorn Yaffee Prescott of Washington, DC, to conduct a preliminary evaluation. After learning more about where the problems lay and what might be required to

restore the paintings, the NPS set parameters for the selection of a conservator to complete the task. Their choice, after careful screening, was the team of George W. Adams, a conservation engineer, and Christiana Cunningham-Adams, a fine arts painting conservator, who together have extensive experience in painting conservation in both the United States and in Europe.

The Cunningham-Adams team worked from two decks of aluminum scaffolding erected in each chamber to study the murals carefully and develop a strategy for conservation. They closely examined all 200,000 square inches of the

paintings' surface, which they documented photographically and on computer-generated survey sheets. To determine the extent of the deterioration, they employed Fourier-transform infrared spectroscopy, x-ray diffraction, and the scanning electron microscopy, and had laboratory analysis



done on micro samples for salts, fabric, and microbiological characterization, as well as cleaning tests evaluation. The paint and ground layers of the murals had fractured into a grid of tiny fissures running in all directions. Many of the paint squares between the fissures were either coming loose from the canvas or had fallen off entirely. Moisture had penetrated through the small cracks and as a result, dirt, black fungus, and salts had formed on the surface. Due largely to the pitting effects of the passage of salts and the disruption of the surface by cracks, visibility of the imagery became obscured and the original colors became veiled by a white haze.

The conservators tested methods of cleaning and consolidating the murals before selecting treatments. The first step was to clean the paintings very delicately with one-foot square com-

A conservator on the team of Cunningham-Adams Fine Arts Painting Conservation treats the north mural. Photo by the author.

presses of a solution of one part ethyl alcohol and one part lacquer thinner, allowed to dwell for two minutes. The cracked and lifting paint and ground layers were then pressed back into place, inch by inch, and then consolidated with multiple applications of microcrystalline wax (at 5%, 7.5%, and 8%), followed by multiple applications of methylacrylate resin (Acriloid B72; at 5%). This process not only re-adhered the lifting paint and ground to the surface, but re-saturated the colors as well. The re-saturation process is similar to waxing or oiling dry wood, where the grain and luster of the original material returns as its surface becomes wet. Even with the first applications of the wax, the results were extremely dramatic. The original colors and subject matter were brought back to life, showing how the artist and architect intended the interior of the memorial to be experienced. Before treatment, many original features were obscured. After treatment, even the red rouge of a little girl in the north mural is visible.

An essential property of the wax and resin mixture is that it acts as a moisture barrier. Washington, DC has a very humid climate and the interior of the memorial can become extremely wet. On an unusually balmy winter or spring day when warm air from the outside comes in through the main opening of the memorial and hits the cold stone walls, dewpoint can be reached. As a result, condensation forms on the walls and water runs down the murals, almost as if it is raining in the interior. It is interesting to note that Henry Bacon anticipated that moisture might be a problem and designed a heating system for the memorial, not for human comfort, but to eliminate condensation on the inside. Unfortunately, the system did not work properly and was abandoned early on. Since condensation continues to be a problem, the wax was applied to seal the cracks in the murals and moisture no longer penetrates below. Water, which once soaked directly into the paintings, now beads up and rolls down. By stopping the repeated moisture penetration, this treatment will slow the mural's rate of deterioration. The minimum life of this treatment is approximately 20 years, but it is expected to last considerably longer. A program of monitoring and inspection of the murals will identify any problems and improve its longevity.

Lighting the Murals

Now that the murals have been returned to their original glory, the next step is for the National Park Service to see that they are properly lit. In 1997, a lighting study for the memorial was completed by Einhorn Yaffee Prescott. This study included computer-generated mock-ups and on-site testing to arrive at the best lighting solutions. The type of lighting that most complements the murals is incandescent. Fixtures will be mounted above the chamber ceiling and directed through louvers to the paintings below.

In addition to artificial light, the interior of the memorial is partially lit by three skylights. Below the skylights, set directly into the floor of the memorial's attic, are a series of translucent marble panels through which light enters into the chamber below. As a part of the recent ceiling restoration, the panels—which are thick slabs of Alabama marble—were cleaned and re-saturated with beeswax. The beeswax adds tremendously to the panels' light transmission and this greatly enhances the reading of the murals during daylight hours.

The transformation of the murals from their pre-restoration state to what they are today is truly remarkable. Now the total composition of decorative elements makes sense: the earth tones of the restored murals, the color of the marble and limestone, the leathery-brown color of the restored metal ceiling, and the diffuse light streaming through the cleaned translucent marble panels. While the statue and the inscriptions are somewhat somber and serve to memorialize Abraham Lincoln, the added color and light is inspirational and helps to interpret the values and greatness of this exceptional statesman.

Audrey T. Tepper is a historical architect with the National Park Service, Technical Preservation Services Branch in Washington, DC.

Acknowledgments

I would like to thank the following individuals for contributing to this article: George W. Adams; Christiana Cunningham-Adams; Michael Auer; Michael Zisk; and the staff of National Capital Parks-Central.